AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) A cathode for an electron tube, comprising:

a base metal; and

an electron emissive material layer attached on said base metal, said electron emissive layer including a surface roughness measured from a distance between a highest point and a lowest point of the surface of said electron emissive material layer, being controlled to be a maximum of not more than 8 microns.

2. (Currently Amended) The cathode of claim 1, further comprised of the surface roughness distance being a maximum of not more than 5 microns.

3. (Previously Presented) A cathode for an electron tube, comprising:

a base metal; and

an electron emissive material layer attached on said base metal, said electron emissive layer including a surface roughness measured from a distance between a highest point and a lowest point of the surface of said electron emissive material layer, being controlled to be less than or equal to 8 microns,

further comprised of the density of said electron emissive material layer being 2 to 5 mg/mm^3.

4. (Previously Presented) The cathode of claim 1, further comprised of the thickness of the electron emissive material layer being from 20 to less than 70 microns.

5. (Original) The cathode of claim 1, further comprised of said electron emissive material layer being attached on said base metal by one method selected from the group consisting essentially of printing and deposition.

6. (Original) The cathode of claim 1, further comprised of said electron emissive material layer being attached to said base metal by a screen printing method.

7. (Previously Presented) A method of preparing the cathode for an electron tube of claim 3, the method comprising the steps of:

preparing a paste comprising 40 to 60% by weight carbonate powder, 30 to 50% by weight solvent, and 1 to 10% by weight binder, based on the total weight of said paste; and

attaching said paste on said base metal using one member selected from the group consisting essentially of screen printing, painting and roll coating.

8. (Original) The method of claim 7, further comprised of said solvent being one member

selected from the group consisting essentially of terpinol, butyl carbitol acetate, and a combination of terpinol and butyl carbitol acetate.

9. (Original) The method of claim 7, further comprised of said binder being one member selected from the group consisting essentially of nitrocellulose and ethylcellulose.

10. (Currently Amended) A method of a cathode for an electron tube, said cathode comprising of a base metal, and an electron emissive material layer attached on said base metal, said method comprising the steps of:

mixing carbonate powder, solvent, and binder to form a paste;

applying said paste on a base metal of a cathode for an electron tube to form an electron emissive layer of said cathode, said paste to form an electron emissive layer for said cathode;

controlling a surface roughness measured from a distance between a highest point and a lowest point of the surface of said electron emissive material layer to be ~~less than or equal to~~ a maximum of not more than 8 microns.

11. (Currently Amended) The method of claim 10, with said step of controlling the surface roughness further comprised of the surface roughness being controlled to be ~~less than or equal to~~ a maximum of not more than 5 microns.

12. (Withdrawn) The method of claim 10, with said step of mixing carbonate powder,

solvent, and binder to form a paste, further comprised of carbonate powder being 40 to 60% by weight carbonate powder, 30 to 50% by weight solvent, and 1 to 10% by weight binder, based on the total weight of said paste.

13. (Withdrawn) The method of claim 10, further comprised of said solvent being one member selected from the group consisting essentially of terpinol, butyl carbitol acetate, and a combination of terpinol and butyl carbitol acetate.

14. (Withdrawn) The method of claim 10, further comprised of said binder being one member selected from the group consisting of nitrocellulose and ethylcellulose.

15. (Withdrawn) The method of claim 10, further comprising the step of controlling the thickness of the electron emissive layer to be 20 to 70 microns.

16. (Withdrawn) The method of claim 10, with said step of applying said paste on said base metal further comprising of apply said paste by one member selected from the group consisting of printing and deposition.

17. (Withdrawn) The method of claim 10, with said step of applying said paste on said base metal further comprising of apply said paste by screen printing and said step of controlling the surface roughness by screen printing.

Claims 18-20. (Cancelled)

21. (Previously Presented) The cathode of claim 1, with said electron emissive material layer comprising:

a paste printed on said base metal, said paste comprising of:

40 to 60% by weight carbonate powder based on the total weight of said paste;

30 to 50% by weight solvent based on the total weight of said paste; and

1 to 10% by weight binder mixed with said carbonate powder and solvent, based on the total weight of said paste.

22. (Currently Amended) The cathode of claim 21, further comprised of said solvent being one member selected from the group consisting essentially of ~~terpinol,~~ butyl carbitol acetate, and a combination of terpinol and butyl carbitol acetate.

23. (Currently Amended) The cathode of claim 21, further comprised of said binder being ~~one member selected from the group consisting of nitrocellulose and~~ ethylcellulose.

24. (Previously Presented) The cathode of claim 1, with said electron emissive material layer comprising:

a carbonate powder;

a solvent; and

a binder mixed with said carbonate powder and said solvent.

25. (Currently Amended) The cathode of claim 24, further comprised of 30 to 50% by weight of said solvent and said solvent being terpinol[[,]] .

26. (Previously Presented) The cathode of claim 24, further comprised of said solvent being butyl carbitol acetate.

27. (Previously Presented) The cathode of claim 24 further comprised of said solvent being a combination of terpinol and butyl carbitol acetate.

28. (Currently Amended) The cathode of claim 24, further comprised of said binder being ~~one member selected from the group consisting of nitrocellulose and~~ ethylcellulose.

29. (Currently Amended) The cathode of claim 24, further comprised of 40 to 60% by weight of said carbonate powder[[;]] .

30. (Previously Presented) The cathode of claim 24, further comprised of 30 to 50% by weight of said solvent.

31. (Previously Presented) The cathode of claim 24, further comprised of 1 to 10% by weight of said binder.

32. (Previously Presented) The cathode of claim 27, further comprised of 30 to 50% by weight of said solvent.

33. (Previously Presented) The cathode of claim 1, with said electron emissive material layer comprising of oxide particles having a uniform size.

34. (Currently Amended) The cathode of claim 1, with said electron emissive material layer comprising of oxide particles having a uniform size of the pores between the oxide particles and the pores between the oxide particles being no greater than 8 microns.

35. (Currently Amended) A cathode for an electron tube, comprising:

a base metal; and

an electron emissive material layer attached on said base metal, said electron emissive layer including a surface roughness measured from a distance between a highest point and a lowest point of the surface of said electron emissive material layer, being controlled to be not more than 8 microns,

~~The cathode of claim 1,~~ with said electron emissive material layer comprising of oxide particles having the pores between the oxide particles being no greater than 8 microns.

36. (Previously Presented) The cathode of claim 35, with said electron emissive material layer comprising of oxide particles having the pores between the oxide particles being no greater than 5 microns.

37. (Previously Presented) The cathode of claim 35, further comprised of a uniform distribution of the sizes of the oxide particles and pores.

38. (Previously Presented) The cathode of claim 24, with the carbonate particles of the carbonate powder having a size of 5 to 7 microns being separately distributed without aggregation.

39. (Previously Presented) The cathode of claim 3, further comprised of said electron emissive material layer being attached to said base metal by a member selected from a group consisting of printing and deposition.

40. (Previously Presented) The cathode of claim 3, further comprised of said electron emissive material layer being attached to said base metal by a member selected from a group consisting of screen printing, painting and roll coating.

41. (Previously Presented) The cathode of claim 3, further comprised of said electron emissive material layer being applied to said base metal by applying a predetermined pressure.

42. (Currently Amended) A cathode for an electron tube, comprising:

an electron emissive material layer including a surface roughness measured from a distance between a highest point and a lowest point of the surface of said electron emissive material layer, being ~~controlled~~ limited to be a maximum of not greater than 8 microns.

43. (Previously Presented) The cathode of claim 42, further comprised of the surface roughness distance being no more than 5 microns.

44. (Currently Amended) A cathode for an electron tube, comprising:

an electron emissive material layer including a surface roughness measured from a distance between a highest point and a lowest point of the surface of said electron emissive material layer, being controlled to be not greater than 8 microns,

~~The cathode of claim 42,~~ further comprised of the density of said electron emissive material layer being 2 to 5 mg/mm^3.

45. (Currently Amended) A cathode for an electron tube, comprising:

an electron emissive material layer including a surface roughness measured from a distance between a highest point and a lowest point of the surface of said electron emissive material layer, being controlled to be not greater than 8 microns,

~~The cathode of claim 42,~~ with said electron emissive material layer comprising of oxide

particles having the pores between the oxide particles being no greater than 8 microns.

46. (Currently Amended) A cathode for an electron tube, comprising:

an electron emissive material layer including a surface roughness measured from a distance between a highest point and a lowest point of the surface of said electron emissive material layer, being controlled to be not greater than 8 microns,

~~The cathode of claim 42,~~ with said electron emissive material layer comprising of oxide particles having the pores between the oxide particles being no greater than 5 microns.

47. (Previously Presented) The cathode of claim 42, further comprised of a uniform distribution of the sizes of the oxide particles and pores.

48. (Previously Presented) The cathode of claim 45, with said electron emissive material layer comprising of a carbonate powder, a solvent and a binder mixed with said carbonate powder and said solvent, the carbonate particles having a size of 5 to 7 microns being separately distributed without aggregation.

49. (New) A method of the cathode for the electron tube of claim 35, said method comprising the steps of:

mixing carbonate powder, solvent, and binder to form a paste;

applying said paste on a base metal of a cathode for an electron tube to form an electron

emissive layer of said cathode, said paste to form an electron emissive layer for said cathode;

controlling a surface roughness measured from a distance between a highest point and a lowest point of the surface of said electron emissive material layer to be less than or equal to 8 microns.

50. (New) The method of claim10, further comprised of forming the density of said electron emissive material layer being 2 to 5 mg/mm^3.

51. (New) The method of claim 10, further comprising of forming said electron emissive material layer comprising of oxide particles having the pores between the oxide particles being no greater than 8 microns.